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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,485	07/31/2003	Matthew W. Holt	02708.0014.NPUS01	6408

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EXAMINER

LEPISTO, RYAN A

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/633,485

Applicant(s)

HOLT ET AL.

Examiner

Ryan Lepisto

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings/Specification

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 730, 740, 750, 760, 770.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "100" has been used to designate both bonding agent and epoxy seal.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 21-22** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. Claim 21 recites the limitation "first, second conductive tube and conductive housing." There is insufficient antecedent basis for this limitation in the claim. Claim 22 recites the limitation "sleeve." There is insufficient antecedent basis for this limitation in the claim.

The claims would overcome this rejection if claim 21 was dependent on claim 20 and if claim 22 was dependent on claim 21, which is the pattern for similar claims 17 and 18. For the sake of this action, the office will apply art to the applicant's invention as if claim 21 is dependent on claim 20 and claim 22 being dependent on claim 21.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-3 and 6-8** are rejected under 35 U.S.C. 102(b) as being anticipated by **Gould (US 4,547,774)**. Gould teaches a cable seal to seal against fluid brine in a first, high pressure environment from penetrating a second, low pressure environment inside a cable housing (Fig. 1, 3-4, column 1 lines 25-35) comprising a metallized nickel-steel alloy layer (53) on a plurality of glass (silica is a well know glass) fibers (51) contained in a buffer core (52) (column 3 line 40 and 62-64) and a fluorinated bonding agent (54) seal disposed on the metallized nickel-steel alloy layer (53) and configured to seal a portion of the cable against the passage of fluids (column 3 lines 45-46, 59-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 4-5, 9-15 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gould.

6. With regard to **claims 4-5, 15 and 19**:

Gould teaches the cable seal used in a system for transmission of data between low and high pressure environments (column 1 lines 26-30) with the limitations described above used to reject claims 1-3 and 6-8. Gould also teaches the communication cable having a first region (Fig. 1, region between where the layer 58a ends and where the fibers 28 and 23a emerge from the layer 57a) wherein at least some of the fibers (51) have a coating (part of 57a), a second region (Fig. 1, region right of where tube (57a) ends and fibers (28, 23a) emerge) wherein at least some of the fibers have substantially no additional coating (column 3 lines 6-7), a third region (region that includes sheath (58a) that partially enters housing (10a) wherein at least some of the fibers have a second coating (part of 58a), the seal (54) described above that extends partly into the first and second regions (part of 57a and 58a) and an electro-optical module (column 5 lines 12-13) within the low pressure environment inside the

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cable seal coupled to the fibers (Fig. 1 shows light coupled out of the ends of fibers (51, 23a, 28) to the electro-optic components).

Gould does not teach expressly the seal layer is an epoxy.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to the bonding layer, the epoxy layer (53) instead of metallized layer (54) since epoxy would adhere to silicone rubber elastomer layer (52) so the applicant's condition concerning the bonding layer is met as stated on page 4 of the specification (other (nonmetallic or metallic) materials may be suitable for forming the bonding layer as long as it sufficiently forms a seal with a desired level of pressure resistance) and, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

The motivation for doing so would have been prevent microbends in the optical fibers by using the cured epoxy to conform precisely to the buffered fibers (column 3 lines 54-56).

7. With regard to **claims 9-14**:

Gould teaches the cable seal described above with the limitation used to reject claims 1-3 and 6-8, which includes the inherent method of forming the above structure with the mentioned materials.

Gould does not teach expressly removing an amount of an overlayer on the core material to expose a surface to which a bonding layer may be applied or placing a region of the cable in a mold.

Gould does teach curing the epoxy to bond to layer (52) so it would have been obvious to one of ordinary skill at the time of the invention that the curing took place for a sufficient time to allow for bonding.

The motivation for doing so would have been to increase durability by creating a liquid tight seal.

Also, at the time the invention was made, it would be obvious to a person of ordinary skill in the art to not remove an overlayer on the core material if there was no overlayer material on the core to begin with as it stated in the applicant's specification. Applicant has not disclosed that removing an overlayer provides an advantage, is used for a particular purpose, or solves a stated problem. Specially, the applicant teaches on page 4 that the step of removing an overlayer may be regarded as removing nothing. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with cable seal as taught by Gould because Gould does not teach an overlayer so there is no need to remove anything.

The motivation would have been to reduce production time and complexity by removing a step and the time and energy need to complete the removing of the overlayer.

Gould also discloses the claimed invention in claims 12 except for that the layer disposed on the bonding layer (54) is not an epoxy. It would have been obvious to one of ordinary skill in the art at the time the invention was made to the bonding layer, the epoxy layer (53) instead of metallized layer (54) since epoxy would adhere to silicone rubber elastomer layer (52) so the applicant's condition concerning the bonding layer is

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meet as stated on page 4 of the specification (other (nonmetallic or metallic) materials may be suitable for forming the bonding layer as long as it sufficiently forms a seal with a desired level of pressure resistance) and, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

The motivation for doing so would have been prevent microbends in the optical fibers by using the cured epoxy to conform precisely to the buffered fibers (column 3 lines 54-56).

8. **Claims 16-18 and 20-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Gould and **Diaz (US 4,135,587)**.

Gould teaches the cable seal described above with the limitation used to reject claims 1-15 and 19 including an insulating shell sleeve (1a with 10a) surrounding all of the regions and layers.

Gould does not teach expressly that the tube surrounding the first and third regions and housing surrounding the second region are conductive and form a continuous conductive path or a polyethylene insulating sleeve over these conductors.

Diaz teaches a seal housing for protect phone cables from external pressures (column 1 lines 32-46) comprising a housing (16, Fig. 7-8, 10-11) comprising multiple conductive polymer layers (31, 32a, 32b, 33a, 33b, 34a, 34b) (part polyethylene, column 9 lines 49-50) surrounding a portion of the cable (13).

Gould and Diaz are analogous art because they are from similar problem solving areas, protecting cables from high-pressure environments.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have tubes surrounding the regions as taught by Gould to be conductive polymers as taught by Diaz to create a continuous conductive path and because the applicant does not set any restraints on what the conductive materials should be fabricated from.

The motivation for doing so would have been to increase the integrity of the seal by using heat to deform the materials surrounding the cable to flow around the cable tightly (Diaz, column 2 lines 28-35).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Hirschfeld (US 4,599,901) and (US 4,784,811) teach a pressure sensitive sensor comprising an optical fiber surrounded by a metallization layer and epoxy.
- Arab-Sadeghabadi et al (US 6,744,965 B2) and (US 2002/0064367) teach a pressure vessel comprising an optical fiber surrounded by a metallization layer and epoxy agent in a pressure sensitive environment.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ryan Lepisto

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Date: 2/8/05



Frank Font

Supervisory Patent Examiner

Technology Center 2800